

The following collections were made, in each case on the shores of natural enlargements of the Fox River: MARQUETTE Co.: margin of Buffalo Lake, Montello, *Fassett* no. 8830. GREEN LAKE Co.: north shore of Lake Puckaway, *Fassett* no. 8829; south shore of Lake Puckaway, Marquette, *Fassett* no. 8801.

Other collections in Wisconsin, all in the southeastern part, are: MILWAUKEE Co.: Bay View, *F. Runge*.¹ DODGE Co.: Fox Lake, *H. L. Ward*;¹ Horicon Marsh, Horicon, *Fassett* no. 8831.

GALIUM BOREALE L., var. TYPICUM Beck von Man. In Wisconsin as follows: SAUK Co.: marshy uplands, Baraboo, July 7, 1891, *R. H. True*. DANE Co.: near R. R., abundant, South Madison, June 2, 1903, *Pauly*. "The only specimens in the Gray Herbarium and the herbarium of the New England Botanical Club from east of Manitoba are one each from northern New Hampshire, northern Vermont and northern New York."²

BIDENS CORONATA (L.) Britton; not Fisch. (*B. trichosperma* (Michx.) Britton). Reported in Gray's Manual, ed. 7, from "Mass. to Va. near the coast; also N. Y. to Ill. and Ky.; said to extend northwestw. to Minn.," this plant proves to be abundant in wet places across the southern half of Wisconsin, occurring northward as far as Clark and Shawano Counties. *B. aristosa*, reported as from "O. to Mich., Minn., and southwestw.", a range which seems to include southern Wisconsin, appears to be absent from this state. Of the many herbarium sheets here and at the Milwaukee Public Museum, marked *B. aristosa*, all that bear mature fruit are clearly *B. coronata*.

MADISON, WISCONSIN.

THE AUSTIN COLLECTION FROM THE LABRADOR COAST

HARLOW BISHOP

DURING the summer of 1928, Dr. Oliver L. Austin of Tuckahoe, New York conducted a third expedition to the coast of Labrador. An intensive survey of the bird fauna of the outside islands, the large number of which lends hazard to navigation in this part of the world, formed the guiding motive of the venture. Oliver L. Austin, Jr., a

¹ Specimen in the Herbarium of the Milwaukee Public Museum.

² Fernald, RHODORA xxx. 107 (1928).

student of ornithology at Harvard University, made a critical collection of the rare and interesting birds of the coast, but concentrated particularly on the banding of young birds, in order to secure new data on migrational routes.¹ The writer was fortunate to be a member of the party and to be privileged to make a parallel survey of the flora, under the authorization of the Gray Herbarium.

Twenty stations were the site of collections along the southern and central parts of the coast, from Battle Harbor (lat. 52° 15', long. 55° 35') on the south to Tikkoatokok Bay (lat. 57°, long. 62°) on the north, representing a stretch of some four hundred miles. From all but relatively few of these, previous collections have been made. The long and finely discriminating activities of the Moravian missionaries, since the inception of their influence in 1732, though chiefly at Hopedale, at Nain and at Okkak, have contributed greatly to our knowledge of the flora of Labrador.² The number of additions to the flora, that have been made as a result of the present expedition, was therefore not large, but the weather was so favorable that nearly two thousand sheets of material were brought back for examination and exchange.

The vegetation shows, in exposed situations, the general depressed habit of the crowberry, *Empetrum nigrum*, and the bearberry, *Arctostaphylos alpina*, but becomes a low forest of black spruce, *Picea mariana*, with a dense lichen turf, mostly of *Cladonia alpestris*, in sheltered valleys. The conspicuous Canadian character of the flora of at least this section of the coast is in line with what one would expect from the physiographic history of the region. The age, origin and affinities of the flora appear to have a definite relation to the extensive glaciation in recent geologic times. The potency of this factor is easy to see in the almost total absence of soil, the low, rounded hills of essentially uniform height and the countless boulders everywhere to be seen. The rarity of such forms as *Puccinellia tenella*, *Dupontia micrantha*, and *Koenigia islandica* would seem to point to the disappearance of the older arctic flora of the region, and the dominance of such forms as *Picea mariana*, *Abies balsamea*,

¹ The results have been summarized in a preliminary way in "Migration Routes of the Arctic Tern," O. L. Austin Jr., Bull. Northeastern Bird-Banding Assoc., Vol. IV, No. 4, Oct., 1928.

² The first critical notes on the flora of Labrador, based on these collections, were published by R. R. von Schranck as "Aufzählung einiger Pflanzen aus Labrador, mit Anmerkungen." Denkschriften der König-Baier. Bot. Gesellschaft, Zweite Abt., 1815. Regensburg.

Calamagrostis canadensis var. *robusta*, *Carex brunnescens*, *C. leptalea*, *C. vaginata*, *Juncus filiformis*, *Streptopus amplexifolius*, *Habenaria dilatata*, *Alnus crispa*, *Coptis groenlandica*, *Drosera rotundifolia*, *Ribes glandulosum*, *Amelanchier Bartramiana*, *Viola pallens*, *Cornus canadensis*, *Trientalis borealis*, *Menyanthes trifoliata* var. *minor*, *Viburnum pauciflorum*, and *Solidago macrophylla* var. *thyrsoidea*, points to the invasion of a more southern flora. A parallel case has been proved for the flora of Europe, where the glaciations were even more protracted and more devastating to the original flora than in northern America. But the efficacy of this factor in the distribution of plants has been set forth most clearly by the intensive study of the flora of Newfoundland and of the Gaspé Peninsula.¹ The spread northward of Canadian types at the close of Pleistocene times thus appears to be the main clue to the origin of the Labrador flora.

The present collection was identified at the Gray Herbarium, Harvard University, under the direction of Professor M. L. Fernald. The following numbers have been considered by him worthy of note.

No. 55. *HIEROCHLOE ODORATA* (L.) Wahlenb. var. *FRAGRANS* (Willd.) Richter. This is the common vanilla grass, but represents a slight northern extension from the Straits of Belle Isle to Petty Harbor (lat. $52^{\circ} 25'$, long. $55^{\circ} 40'$).

No. 70. *DANTHONIA INTERMEDIA* Vasey. A species with unusually large spikelets and a disrupted range, known from the Rocky Mountains to the Pacific, in Kamtchatka, on the Shickshock Mountains of Gaspé and the mountains of western Newfoundland. This is the first station north of Newfoundland, at Mokkaik (lat. $55^{\circ} 10'$, long. $59^{\circ} 15'$).

No. 86. *PUCCINELLIA TENELLA* (Lange) Holmb. This dwarf, tufted grass, originally described from Nova Zembla and subsequently recorded from Greenland and from Cape Chidley in northernmost Labrador, was found on a small rock island, fifteen miles northeast of Ford Harbor (lat. 57° , long. 62°), thus extending its range south from Cape Chidley.²

No. 101. *ELEOCHARIS UNIGLUMIS* (Link) Schultes. A circumpolar species which has been but recently recognized in America. Its collection at Paradise River, Sandwich Bay (lat. $53^{\circ}, 30'$, long. $57^{\circ}, 15'$) furnishes the most northern material in extreme eastern America.

Nos. 111 and 111b. *CAREX GYNOCRATES* Wormsk. The range of this diminutive sedge in continental eastern America has been extended considerably northward from the Straits of Belle Isle to Hopedale (lat. $55^{\circ} 27'$, long. $60^{\circ} 12'$).

¹ For a significant discussion of these regions see M. L. Fernald, "Persistence of Plants in Unglaciated Areas of Boreal America." Mem. Amer. Acad. of Arts and Sciences, Vol. XV, No. 111, 1925.

² Simmons, H. G. Phytogeogr. Arct. Am. Archipel. 52, 1913.

No. 113. *CAREX EXILIS* Dewey. A common sedge to the south, its known range now extended northward from the Straits of Belle Isle to Makkovik (lat. $55^{\circ} 10'$, long. $59^{\circ} 15'$).

No. 141. *CAREX LIVIDA* (Wahlenb.) Willd. var. *GRAYANA* (Dewey) Fernald. The range extended northward from the Straits of Belle Isle to Makkovik (lat. $55^{\circ} 10'$, long. $59^{\circ} 15'$).

No. 166. *CAREX LYNGBYEI* Hornem. The purple-black spikes of this coarse sedge render it particularly conspicuous at Gready Island (lat. $53^{\circ} 50'$, long. $56^{\circ} 20'$). It is widely dispersed in northern Eurasia but has heretofore been known in America only from Greenland and from Alaska to Oregon.

No. 179. *JUNCUS ARCTICUS* Willd. This species has been known from arctic regions, the shores of Hudson Bay, and from Alaska to Alberta. This is a southern extension from Baffin Land to the Fraser River (lat. 57° , long. 62°).

No. 230a. *CORALLORHIZA TRIFIDA* Chatelain. This species of coral root has not been known north of Newfoundland and its present collection represents an extension northward in range to Hopedale (lat. $55^{\circ} 27'$, long. $60^{\circ} 12'$).

No. 275. *ALNUS INCANA* (L.) Moench. A common alder of New England and eastern Canada, its known northern limit is extended from the northern shore of the Gulf of St. Lawrence to Paradise River, Sandwich Bay (lat. $53^{\circ} 30'$, long. $57^{\circ} 15'$).

No. 334. *RORIPA HISPIDA* (Desv.) Britton var. *GLABRATA* Lunell. Extended north from the north shore to the Gulf of St. Lawrence to Paradise River, Sandwich Bay (lat. $53^{\circ} 30'$, long. $57^{\circ} 15'$).

No. 525. *VERONICA SCUTELLATA* L. The present specimens of this purple-flowered herb represent the dwarf northern extreme of the species. Their collection at Tikkoatokok Bay (lat. 57° , long. 62°), records it for the first time from the Labrador peninsula, the previous northeastern records being from Newfoundland.

No. 590. *ASTER FOLIACEUS* Lindl. var. *FRONDEUS* Gray. The former eastern range of this variety, characteristic of the Rocky Mountains, the Gaspé Peninsula, and western Newfoundland, has been extended north to Makkovik (lat. $55^{\circ} 10'$, long. $59^{\circ} 15'$).

No. 592. *ANTENNARIA ISOLEPIS* Greene. The station at Cape Harrigan (lat. $55^{\circ} 50'$, long. $60^{\circ} 20'$) is slightly south of the previously known southern limit at Port Manvers.

No. 608. *HIERACIUM GROENLANDICUM* Arvet-Touvet. The frequency of this species of hawkweed along Labrador, and on Newfoundland and Anticosti Island, calls into doubt its consideration as an endemic of Greenland. The present material was collected at September Harbor (lat. 57° , long. 62°).

HARVARD UNIVERSITY.

Volume 32, no. 374 including pages 17 to 34, was issued 1 February, 1930.